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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/622,631	07/21/2003	Manuel R. Silva JR.	052250-5003	4556

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EXAMINER

GORMAN, DARREN W

ART UNIT	PAPER NUMBER
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3752

DATE MAILED: 06/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 10/622,631	Applicant(s) SILVA ET AL.	
	Examiner Darren W. Gorman	Art Unit 3752	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 April 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-153 is/are pending in the application.
- 4a) Of the above claim(s) 2-26, 36-47, 52-54 and 58-134 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 55-57 is/are allowed.
- 6) ☒ Claim(s) 1, 27-35, 48-51, 135, 137 and 151 is/are rejected.
- 7) ☒ Claim(s) 136, 138-150, 152 and 153 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Examiner's Notes

1. With respect to the listing of claims filed by Applicant on April 28, 2006, the Examiner noted a claim numbering error. Applicant included two different claims numbered "146". For purposes of this Office Action, the second "146" will be examined as claim "147" and the claims numbered "147" through "152" will be examined as claims "148" through "153".

Election/Restrictions

2. In view of the status identifiers on the listing of claims filed April 28, 2006 and in view of the comments made on page 43, lines 18-20 of the "Remarks" section of the response filed therewith, Applicant has withdrawn claims 4 and 6 from further consideration as being drawn to a nonelected species. Further, claims 2, 3, 5, 7-26, 36-47, 52-54 and 58-134 were withdrawn from further consideration in the Office Action mailed December 28, 2005. Therefore, claims 2-26, 36-47, 52-54 and 58-134 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention or species, there being no allowable generic or linking claim.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 27, 29 and 48-51 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Hodgman, Jr., USPN 2,155,990.

Hodgman shows a dry sprinkler comprising: a structure (5, 6, 12) defining a passageway extending along a longitudinal axis between an inlet (12) and an outlet (27); a fluid deflecting structure (11) proximate the outlet; a locator (26) movable along the longitudinal axis between a first position and a second position; and a metallic disc annulus (21) (see page 2, lines 41-43) supported on a closure body (15), the disc annulus having a face disposed about a central axis between an inner perimeter and an outer perimeter, the outer perimeter contacting a portion of the structure so that the face occludes a flow of fluid through the passageway when the locator is in the first position (see Figure 1), and wherein the disc annulus is skewed from the longitudinal axis within the passageway when the locator is proximate the second position (see Figure 3). Hodgman further shows the sprinkler including a member (16) that contacts the closure body and disc annulus assembly such that when the locator moves from the first position to the second position, the face of the disc annulus is translated to one side of the longitudinal axis (see Figure 3). Further, Hodgman shows the inlet (12) comprising an entrance surface having a first end and a second end disposed along and surrounding the longitudinal axis, and a seat surface (14) adjacent the second end of the entrance surface.

Regarding the recitation that the flow of fluid from the outlet of the structure is at least 95 percent of the rated K-factor, Hodgman clearly discloses (see page 2, lines 20-39) and shows (see Figure 3) that water flows unobstructed through the inlet port and out through the outlet to the deflecting structure when the locator is proximate the second position. Though Hodgman does not expressly discuss a K-factor rating for the disclosed device, the device would inherently have a K-factor rating defining an expected flow rate. Further, the term “unobstructed” can reasonably be interpreted to mean that the flow of fluid from the outlet is at least 95 percent of the inherent K-factor rating, or in the alternative, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adjust or modify the disclosed parameters of the device shown by Hodgman in order to ensure that the flow of fluid from the outlet is provided at an acceptable and optimal level.

Regarding the recitations in claims 27 and 48-50, with respect to the size of the threads (7) on the outer cylindrical surface of the inlet end of the structure, the pressure of the flow fed into the inlet end, and the specific K-factor of the structure, each of the recited parameters are reasonably within the spirit of the disclosure of Hodgman, or in the alternative, each of these recited parameters are old and well known in dry sprinklers of the prior art, and as such do not constitute a patentable distinction over the device shown by Hodgman. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to form the sprinkler of Hodgman having each of the recited parameters of known dry sprinklers, since these parameters are well known to those in the art.

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5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1, 27-35, 48-51, 135, 137 and 151 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Dolan, US Patent Application Publication 2002/0050531.

Dolan shows a dry sprinkler (see Figures 1-3) comprising: a structure (11, 21, 13) defining a passageway extending along a longitudinal axis between an inlet (21) and an outlet (13); a fluid deflecting structure (12) proximate the outlet; a locator (25) movable along the longitudinal axis between a first position and a second position; and a metallic disc annulus (23b) supported on a closure body (23), the disc annulus having a face disposed about a central axis between an inner perimeter and an outer perimeter, the outer perimeter contacting a portion of the structure so that the face occludes a flow of fluid through the passageway when the locator is in the first position (see Figure 2), and wherein the disc annulus is skewed from the longitudinal axis within the passageway when the locator is proximate the second position (see Figure 3).

Dolan further shows the inlet comprising an entrance surface formed as a truncated conical surface having a convex curve, the entrance surface facing and surrounding the longitudinal axis and having a first end and a second end. Dolan further shows a planar annulus seat surface adjacent the second end of the entrance surface and also an oblique surface adjacent the planar annulus surface. Further, the disc annulus of Dolan includes a truncated conical upper surface,

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the outer perimeter thereof contacting the planar annulus seat surface when the locator is proximate the first position.

Regarding the recitation that the flow of fluid from the outlet of the structure is at least 95 percent of the rated K-factor, there is nothing in the disclosure of Dolan that would indicate that the water flow rate through the device would be at an unacceptable level. Though Dolan does not expressly discuss a K-factor rating for the disclosed device, the device would inherently have a K-factor rating defining an expected flow rate. Further, since one would reasonably expect the device of Dolan to provide an acceptable flow rate, one can reasonably conclude that the flow of fluid from the outlet of Dolan is at least 95 percent of the inherent K-factor rating, or in the alternative, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adjust or modify the disclosed parameters of the device shown by Dolan in order to ensure that the flow of fluid from the outlet is provided at an acceptable and optimal level.

Regarding the recitations in claims 27 and 48-50, with respect to the size of the threads (21a) on the outer cylindrical surface of the inlet end of the structure, the pressure of the flow fed into the inlet end, and the specific K-factor of the structure, each of the recited parameters are reasonably within the spirit of the disclosure of Dolan, or in the alternative, each of these recited parameters are old and well known in dry sprinklers of the prior art, and as such do not constitute a patentable distinction over the device shown by Dolan. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to form the sprinkler of Dolan having each of the recited parameters of known dry sprinklers, since these parameters are well known to those in the art.

As to claims 135, 137 and 151, the reference is being applied to the claims in a different manner than as set forth above. Dolan shows a dry sprinkler (see Figures 1-3) comprising: a structure (11, 21, 13) having an inner surface to define a passageway extending along a longitudinal axis between an inlet and an outlet; a fluid deflecting structure (12) proximate the outlet; a member (25) having a first surface secured to the inner surface of the passageway (when pin (26) is in the position shown in Figure 2) and a second surface (25b) disposed in the passageway; and a metallic disc annulus/closure assembly (23) having a first position substantially axially aligned with the longitudinal axis (see Figure 2) and axially spaced from the member for occluding the passageway, the annulus/closure assembly having a second position (see Figure 3) skewed from the longitudinal axis so that fluid can flow from the outlet, the annulus/closure assembly contacting the second surface of the member as the annulus/closure assembly is displaced from the first position to the second position. As to the closure assembly including “a surface”, and “the surface of the closure assembly being axially spaced from the second surface of the member in at least one of the first and second positions”, as recited in claim 137, top surface (23c) of the closure assembly of Dolan reads on the recited surface when the closure assembly is in at least the first position (see Figure 2). As to the structure having “a rated K-factor...”, it is well known in the art that all sprinklers inherently have a rated K-factor. Further, as is well-known in the art, the flow rate of a sprinkler is determined by the equation: $Q = K(p)^{1/2}$

where:

Q = flow rate

K= K-factor

P = residual (flowing) pressure at the inlet to the sprinkler

Verbally reciting a known equation for determining an expected flow of fluid in gallons per minute does not result in a patentable distinction over the prior art.

Regarding the recitation of claim 151 that the flow of fluid from the outlet of the structure is at least 95 percent of the rated K-factor, there is nothing in the disclosure of Dolan that would indicate that the water flow rate through the device would be at an unacceptable level. Though Dolan does not expressly discuss a K-factor rating for the disclosed device, the device would inherently have a K-factor rating defining an expected flow rate. Further, since one would reasonably expect the device of Dolan to provide an acceptable flow rate, one can reasonably conclude that the flow of fluid from the outlet of Dolan is at least 95 percent of the inherent K-factor rating, or in the alternative, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adjust or modify the disclosed parameters of the device shown by Dolan in order to ensure that the flow of fluid from the outlet is provided at an acceptable and optimal level.

Response to Arguments

7. Applicant's arguments, see page 44, lines 6-14 of the "Remarks" section of the response filed April 28, 2006, with respect to the objection to the specification have been fully considered and are persuasive. The objection to the specification has been withdrawn.

8. In view of the amendments to claims 28, 31, 32 and 56 and in view of Applicant's arguments, see page 43, line 16 through page 44, line 5 of the "Remarks" section of the response

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filed April 28, 2006, with respect to rejection of claims 4, 6, 28, 32-35, 56 and 57 under 35 U.S.C. 112, second paragraph, have been fully considered and are persuasive. The rejection of claims 4, 6, 28, 32-35, 56 and 57 under 35 U.S.C. 112, second paragraph, has been withdrawn.

9. Applicant's arguments filed on page 40, line 7 through page 43, line 15, with respect to the rejection of claims 1, 27, 29 and 48-51 under 35 U.S.C. 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Hodgman, Jr.; and with respect to the rejection of claims 1, 27-35 and 48-51 under 35 U.S.C. 102(e) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Dolan, have been fully considered but they are not persuasive.

It is essentially Applicant's position that neither Hodgman nor Dolan expressly or inherently show or describe a dry sprinkler that includes, *inter alia*, an arrangement of components that provide a flow of fluid from the outlet of the structure that is "at least 95 percent of the rated K-factor multiplied by the square root of the pressure of the flow of fluid fed into the inlet of the structure in pounds per square inch gauge", as recited in each of independent claims 1 and 51.

It remains the Examiner's position that the sprinklers disclosed and shown by both Hodgman and Dolan inherently have a rated K-factor. Moreover, all sprinklers and nozzles in general inherently have a rated K-factor. As is well-known in the art, the flow rate of a sprinkler is determined by the equation: $Q = K(p)^{1/2}$

where:

Q = flow rate

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$K = K\text{-factor}$

$P = \text{residual (flowing) pressure at the inlet to the sprinkler}$

Since all of the structural limitations of Applicant's claims are clearly taught in the prior art, it is unclear to the Examiner why Applicant believes verbally reciting a known equation for determining the flow rate of a sprinkler results in a patentable distinction of the instant claims over the prior art.

Allowable Subject Matter

10. Claims 55-57 are allowed.
11. Claims 136, 138-150, 152 and 153 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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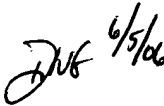
however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Darren W. Gorman whose telephone number is 571-272-4901.

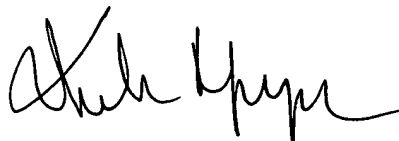
The examiner can normally be reached on M-F 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Scherbel can be reached on 571-272-4919. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


DWG
June 5, 2006

Darren W Gorman
Examiner
Art Unit 3752


DINH Q. NGUYEN
PRIMARY EXAMINER